

Message Text

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PAGE 01 NEW DE 06361 240814Z
ACTION NEA-10

INFO OCT-01 ISO-00 SOE-02 AID-05 CEA-01 CIAE-00
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E.O. 11652: N/A
TAGS: TECH, IN, US
SUBJECT: REPORT OF INDIAN PLUTONIUM RECYCLING STUDY

REF: A. NEW DELHI 5973 B. STATE 097942

1. THE APRIL 21 "HINDUSTAN TIMES" CARRIES A UNI ITEM REPORTING THAT THE DEPARTMENT OF ATOMIC ENERGY HAS TAKEN UP A PLUTONIUM RECYCLING PROJECT WITH A VIEW TO DEVELOPING AN ALTERNATIVE TO THE ENRICHED URANIUM FUEL PRESENTLY USED AT THE TARAPUR ATOMIC POWER STATION " IN ANTICIPATION OF STOPPAGE OF US SUPPLIES". THE NEW DELHI-DATELINED STORY IS SAID TO BE BASED ON AN "ATOMIC ENERGY DOCUMENT" RELEASED APRIL 20. IT APPEARS THAT THIS DOCUMENT IS SEPARATE FROM THE DEPARTMENT OF ATOMIC ENERGY REPORT REPORTED IN REFTELS.

2. ACCORDING TO UNI, INITIAL RESEARCH AND DEVELOPMENT ON THE PROJECT HAS BEEN APPROVED AND EXPERIMENTAL WORK HAS BEGUN.
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PAGE 02 NEW DE 06361 240814Z

DURING 1978-79, THE PROJECT WILL "CONCENTRATE ON RIGGING UP EXPERIMENTAL FACILITIES, RUNNING EXPERIMENTS AND PROCESSING DATA TO VALIDATE THE DESIGN METHODS ADOPTED FOR THE PROJECT".
3. THE DOCUMENT REPORTEDLY ALSO STATES THAT THE DAE IS ESTABLISHING A PROJECT MONITORING CELL AND A COMPUTER CENTER TO MONITOR THE PROGRESS OF VARIOUS ATOMIC ENERGY PROJECTS. THE MONITORING SYSTEM WOULD IDENTIFY ACTUAL OR POTENTIAL DELAYS IN TIME FOR

EFFECTIVE REMEDIAL ACTION.

4. THE FOLLOWING ARE CONGEN BOMBAY'S VIEWS ON THE ABOVE REPORT AND ITS ESTIMATE OF THE FEASIBILITY OF VARIOUS OPTIONS FOR THE INDIANS IN THE EVENT OF A TERMINATION OF THE U.S. FUEL FOR TARAPUR:

A. EVER SINCE EARLY 1976, WHEN THE INTERVENERS FIRST DELAYED TARAPUR SHIPMENTS, THERE HAVE BEEN RECURRING STORIES ABOUT THE DEVELOPMENT IN INDIA OF AN INDIGENOUS SUPPLY OF FUEL TO REPLACE THE UF 6 NOW IMPORTED FROM THE U.S. FOR AT LEAST SIX MONTHS IN THE MIDDLE OF 1976, SETHNA ENCOURAGED US TO BELIEVE THAT THERE WERE GOOD PROSPECTS FOR THE PRODUCTION OF A LOCAL MIXED OXIDE FUEL USING THE PLUTONIUM FROM THE SEPENT FUEL AT TARAPUR, BUT TOWARD THE END OF 1976 HE CHANGED HIS TUNE, INSISTING THAT INDIA'S INTENSIVE WORK ON MIXED OXIDE FUEL HAS CONVINCED HIM THAT IT WOULD BE ALTOGETHER UNECONOMIC TO MOUNT A MIXED OXIDE PRODUCTION FACILITY UNIQUELY DESIGNED FOR TARAPUR. HE SAID THAT REMOTE WELDING OF THE 12 FOOT RODS USED AT TARAPUR WOULD SIMPLY BE TOO DIFFICULT AND MOST OF ALL TOO EXPENSIVE. HE HAS ESTIMATED THE CONSTRUCTION COST OF A MIXED OXIDE PRODUCTION FACILITY FOR TARAPUR AT ABOUT DOLS 40 MILLION. MOREOVER, HE HAS SAID THAT THE UNIT COSTS WOULD BE ENORMOUS BECAUSE OF THE SMALL RUNS TO FILL THE REQUIREMENTS OF A SINGLE PLANT LIKE TAPS.

B. ON THE OTHER HAND, SETHNA HAS ALWAYS INSISTED THAT LIMITED OFFICIAL USE

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PAGE 03 NEW DE 06361 240814Z

HE DOES ENVISAGE THE USE OF MIXED OXIDE FUEL AT SOME TIME IN HIS CANDU REACTORS WHERE THE PRODUCTION FACILITIES WOULD BE MUCH LESS COMPLICATED BECAUSE THE RODS ARE SO MUCH SHORTER, AND UNIT COSTS WOULD BE MUCH LESS ONCE HE GETS THE MADRAS AND NARORA REACTORS INTO OPERATION.

C. IT IS OF COURSE POSSIBLE THAT PRESSURES FOR AN INDIGENOUS SUPPLY WILL BECOME SO GREAT THAT SOME OF HIS SUPERIORS AND COLLEAGUES MAY TAKE "A COST BE DAMMED ATTITUDE". HOWEVER, CONGEN BELIEVES THAT SETHNA IS ALSO SKEPTICAL OF THE IAEC ABILITY TO HANDLE THE PLUTONIUM SUCCESSFULLY IN SUCH A DIFFICULT FABRICATION PROCESS AS WOULD BE REQUIRED FOR THE LONG RODS. CONGEN STILL BELIEVES THAT SETHNA IS SINCERE PROTESTING THAT INDIGENOUS FABRICATION OF A MIXED OXIDE FUEL IS NOT A VIABLE ALTERNATIVE FOR TARAPUR.

D. FROM TIME TO TIME CONGEN HAS DISCUSSED WITH SETHNA POSSIBILITIES FOR LOCAL ENRICHMENT OF URANIUM. THE IAEC HAS MODEST PROGRAM ON WAY FOR EXPERIMENTING WITH THE CENTRIFUGE, NOZZLE AND LASER ENRICHMENT METHODS. HE CLAIMS THAT THE RESULTS ARE MODEST AND HOLD NO PROSPECT OF EARLY SUCCESSFUL COMMERCIALIZATION.

E. WHEN ONE LOOKS AT THE AMOUNT OF IMPORTED EQUIPMENT IN THE PLUTONIUM REPROCESSING PLANT WHICH IS USED FOR REMOTE HANDLING OF PLUTONIUM UNDER QUITE EASY CONDITIONS THERE, ONE MUST WONDER HOW INDIA COULD QUICKLY FABRICATE ALL OF THIS COMPLICATED MACHINERY, PARTICULARLY WHEN IT WOULD HAVE TO BE ADAPTED FOR EVEN MORE DIFFICULT CONDITIONS. CONGEN ASSUMES THAT THE EUROPEAN SUPPLIERS WOULD NO LONGER BE WILLING TO LICENSE SHIPMENTS OF SUCH EQUIPMENT TO INDIA.

F. IN SUM, CONGEN IS INCLINED TO TAKE SETHNA AT HIS WORD WHEN HE SAYS THAT THERE ARE ONLY TWO OPTIONS FOR INDIA IF THE NEW US LEGISLATION FORCES A CUT OFF IN SUPPLIES OF UF 6. THESE ALTERNATIVES ARE:

(A) AN ALTERNATIVE SUPPLIER WHICH COULD ONLY BE FRANCE OR THE LIMITED OFFICIAL USE

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PAGE 04 NEW DE 06361 240814Z

USSR.

(B) INSTALLATION OF A THERMAL UNIT TO DRIVE THE TARAPUR TURBINES
GOHEEN

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